

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF MARYLAND**

**UNITED STATES OF AMERICA**

**v.**

**HOAU-YAN WANG,**

**Defendant.**

**CRIMINAL NO: TDC-24-211**

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**MOTION TO EXCLUDE DEFENDANT HOAU-YAN WANG'S  
PROPOSED EXPERT TESTIMONY**

The United States of America, through its undersigned attorneys, respectfully moves to preclude the Defendant's proposed expert testimony because it is either unreliable under Federal Rule of Evidence 702 or irrelevant under Federal Rules of Evidence 401, 402, and 403. The Defendant has provided expert disclosure for three potential witnesses: (1) Dr. Ernest Chiodo to opine on the principles and methods of the government's expert, Dr. Paul Brookes; (2) Dr. Peter Radtke to opine on the evidence of manipulation in the final Western blot images as compared to those submitted to scientific journals as originals by the Defendant; and (3) Alyssa Lisiewski to opine on certain metadata associated with the Defendant's Western blot images.

Dr. Chiodo lacks the technical and specialized knowledge to reliably opine on Western blot image analysis and his opinion about his review of scientific literature about image analysis detection is, at best, deficient. Dr. Radtke's proposed testimony is not relevant because it indicates that the images provided by the Defendant after the fact match those that were ultimately used—the government does not dispute that they match but instead intends to prove that the Defendant's manipulation of the Western blot occurred before those images were created and that both of the images Dr. Radtke matches were products of the Defendant's prior image fabrication. Ms. Lisiewski's proffered testimony only concludes that image metadata cannot be used to match the

original image to the final image, which is not in dispute and, if anything, tends to show that the final image was manipulated since the metadata does not match and that certain parts of the Defendant's process not in dispute is replicable. For all of these reasons, the Court should exclude the Defendant's proposed expert opinions.

### **LEGAL STANDARD**

All evidence, including expert testimony, must be relevant to be admissible. Fed. R. Ev. 402. Evidence is relevant if (i) "it has any tendency to make a fact more or less probable than it would be without the evidence" and (ii) "the fact is of consequence in determining the action." Fed. R. Ev. 401. Courts further have discretion to "exclude relevant evidence if its probative value is substantially outweighed by a danger of ... unfair prejudice, confusing the issues, misleading the jury, undue delay, wasting time, or needlessly presenting cumulative evidence." Fed. R. Ev. 403. An expert may be permitted to testify if he or she is qualified, reliable, and helpful. Fed. R. Ev. 702. In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, the Supreme Court charged district courts with a gatekeeping role with respect to expert testimony. 509 U.S. 579, 597 (1993). This inquiry is "guided" by Federal Rule of Evidence 702, *id.* at 598-95, under which courts have discretion to admit expert testimony when:

- (1) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (2) the testimony is based on sufficient facts or data;
- (3) the testimony is the product of reliable principles and methods; and
- (4) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Ev. 702.<sup>1</sup> “In advance of trial, the proponent must ‘come forward with evidence from which the court can determine that the proffered testimony is properly admissible.’” *Jones v. Allen*, No.CV PX-15-1173, 2016 WL 9443772, at \*2–3 (D. Md. Oct. 24, 2016) (quoting *Maryland Cas. Co. v. Therm-O-Disc, Inc.*, 137 F.3d 780, 783 (4th Cir. 1998)). The proponent of proposed expert’s testimony must “demonstrate by a preponderance of evidence that [the proposed expert’s] opinions are reliable.” *Maryland Cas. Co.*, 137 F.3d at 783.

“As gatekeeper, the Court must vigilantly guard against expert testimony that is not only ‘powerful’ but ‘quite misleading.’” *Jones*, 2016 WL 9443772, at \*2–3 (quoting *Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194, 199 (4th Cir. 2001)). Courts acting in this role exclude testimony from individuals who lack the requisite expertise. *Minifield v. Sills*, No. 5:17CV43, 2022 WL 2792209, at \*4 (W.D. Va. July 15, 2022) (excluding testimony of individual who had no training, experience, or education to provide a medical or pathological opinion). When assessing the relevance and reliability of a proposed expert’s testimony, *Daubert* instructs the Court to consider whether: (1) the particular scientific theory “can be (and has been) tested”; (2) whether the theory “has been subjected to peer review and publication”; (3) the “known or potential rate of error”; (4) the “existence and maintenance of standards controlling the technique’s operation”; and (5) whether the technique has achieved “general acceptance” in the relevant scientific or expert community. *United States v. Crisp*, 324 F.3d 261, 266 (4th Cir. 2003) (quotations omitted). “Importantly, the inquiry to be undertaken by the district court is a flexible one focusing on the principles and methodology employed by the expert, not on the conclusions reached.” *Jones*, 2016

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<sup>1</sup> Federal Rule of Criminal Procedure 16(b)(1)(C)(i) provides that “the defendant must disclose to the government, in writing, the information required by (iii) for any testimony that the defendant intends to use under Federal Rule of Evidence 702, 703, or 705 during the defendant’s case-in-chief at trial.”

WL 9443772, at \*2–3 (citing *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 261 (4th Cir.1999)) (quotations omitted).

## **ARGUMENT**

### **I. The Court should exclude the proposed expert testimony of Dr. Ernest Chiodo**

As a threshold matter, Dr. Chiodo lacks the scientific, technical, or other specialized knowledge to reliably opine on Western blot image analysis, which is the subject of Dr. Chiodo’s proffered testimony as it relates to Dr. Brookes’ Western blot image analyses of the Defendant’s Western blot research. *See* Ex. 1 at 3-5. Although Dr. Chiodo may be an expert in disease causation as he advertises on his website or other disciplines, nowhere in his 30-page CV nor in his expert report is there any indication that he is an expert in either Western blot experiments or in image analysis. *See* “Ernest P. Chiodo” “Physician-Attorney”. *available at* <https://www.ernestpchiodo.com/> (last accessed Aug. 15, 2025); *see also* Exs. 1 and 2. Dr. Chiodo describes what a Western blot is in a single sentence in his report but evinces no actual experience or expertise in conducting Western blot experiments or analyzing images of Western blots.

Dr. Chiodo’s expert report proffers several opinions:

- (1) That he searched the database for the United States Library of Medicine and found “no support in the peer reviewed medical or scientific literature” that Dr. Brookes used a recognized or validated scientific methodology in conducting his analyses and reaching his conclusions;
- (2) He conducted a targeted search of National Institutes of Health (“NIH”) materials and there are no applicable guidelines or federal regulations and, therefore, Dr. Brookes’ opinions are “unsupported by applicable NIH standards or federal guidance”;

- (3) Within the discipline of disease causation, a differential diagnosis methodology is an appropriate methodology of ruling in plausible causes and ruling out alternatives; a differential diagnosis methodology is also appropriate in Western blot image analysis and Dr. Brookes did not “consider[] and systematically exclude[] alternative explanations for his conclusions.”

See Ex. 1 at 3-5. Dr. Chiodo’s proffered opinions only serve to demonstrate his ignorance of the image analysis area on which he offers expert testimony, which becomes clear with an examination of each of the three opinions above that demonstrates they are not reliable under Rule 702.

Dr. Chiodo’s opinion based on his failure to find peer-reviewed literature about image analysis methodologies has several problems. As a threshold matter, it is not clear how someone searching a scientific database for information about Western blot image analysis, a topic in which Dr. Chiodo appears to have no expertise or experience, can constitute expert testimony. And, even if it were expert testimony, Dr. Chiodo’s search was so deficient such that his opinion is unreliable. A simple internet search quickly brings up an article entitled “SILA: A System for Scientific Image Analysis,” published in *Nature’s Scientific Reports*, a peer-reviewed journal that was the fifth most-cited journal in the world in 2023. See Moreira, D., Cardenuto, J.P., Shao, R. *et al.* SILA: a system for scientific image analysis. *Sci Rep* 12, 18306 (2022). This 2022 article discussed both existing image analysis techniques and methodologies and proposed augmenting and automating parts of that process using artificial intelligence; several of the examples discuss and depict the type of image analysis techniques Dr. Brookes conducted on the Defendant’s Western blots.<sup>2</sup> *Id.*

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<sup>2</sup> Moreover, a number of other citations from this article (funded in part by U.S. Department of Health and Human Services Office of Research Integrity (“ORI”) and NIH) relate to other peer-reviewed articles discussing image analysis, for example: Bik, E., Casadevall, A. & Fang, F. The prevalence of inappropriate image duplication. *Biomed. Res. Publ.* 7 (2016); Bucci, E. Automatic detection of image manipulations in the biomedical literature. *Nat. Cell Death Dis.* 9, 400 (2018); Zhang, X., Sun, Z. H., Karaman, S. & Chang, S.-F. Discovering image manipulation history by pairwise relation and forensics tools. *IEEE J. Select. Top. Signal Process.* 1012–1023 (2020); Rossner, M. & Yamada, K. What’s in a picture? The temptation of image manipulation. *J. Cell Biol.* 166,

Finally, Dr. Chiodo’s opinion does not address at all—because he does not have the expertise to do so—whether or not Dr. Brookes’ Western blot image analyses would qualify as “specialized knowledge” under Rule 702, even if there was no applicable peer-reviewed literature (which there is). According to his report, Dr. Chiodo reviewed Dr. Brookes’ reports 4.1 through 4.18. Ex. 1 at 3. In doing so, it appears Dr. Chiodo did not review Dr. Brookes’ report 1, which described background on Western blot standards and features of certain image analysis techniques (and included several citations to peer-reviewed articles), report 2, which described in eight steps his analytical methodology, or report 3, which provided further detail and information about his analytical methodology. Since Dr. Chiodo did not review the reports in which Dr. Brookes laid out his methodology, it is not clear how he can have any reliable opinion at all on Dr. Brookes’ methodology. In contrast, Dr. Brookes has extensive knowledge and experience, both with respect to Western blots and with respect to image analysis, which he has utilized and demonstrated in his detailed explanations in his reports and which will help the “trier of fact to understand the evidence” and “to determine a fact in issue.” *See* Fed. R. Evid. 702.

Dr. Chiodo’s opinion concluding that Dr. Brookes analyses are unsupported by “NIH standards or federal guidance” exhibits similar ignorance about U.S. Department of Health and Human Services (which houses NIH) practices, standards, and guidance. Whatever search Dr. Chiodo conducted of public NIH materials, he failed to discover that the U.S. Department of Health and Human Services Office of Research Integrity (“ORI”), which has jurisdiction over NIH, and NIH itself publicly provide certain forensic tools specifically created for image analysis (and

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11–15 (2004); Mazaheri, G., Avila, K. U. & Roy-Chowdhury, A; Learning to identify image manipulations in scientific publications arXiv:2102.01874 (2021); and Mandelli, S. *et al.* Forensic analysis of synthetically generated western blot images. *IEEE Access* 10, 59919–59932 (2022).

typically used for Western blot analysis), including tools that Dr. Brookes used in his analyses,<sup>3</sup> and that ORI makes publicly available on their website active adjudicated actions of scientific misconduct in NIH grants,<sup>4</sup> a number of which describe the detected fabrication of Western blot images (and which were also published in the Federal Register).<sup>5</sup> Lastly, Dr. Chiodo is either unaware of or gives no credence to the fact provided to the Defendant that ORI has reviewed Dr. Brookes' analyses against ORI's own methodologies and standards and validated his approach, all of which renders his opinion unreliable.

Dr. Chiodo's opinion about disease causation methodology is also problematic because this is a case about Western blot manipulation, not disease causation. Although disease causation is an area Dr. Chiodo appears to have legally cognizable expertise, it is not clear why it is analogous to image analysis, and Dr. Chiodo gives no examples of others using a similar analogy framework or reasons it would be appropriate here,<sup>6</sup> only stating in a conclusory fashion that it "applies

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<sup>3</sup> ORI makes a downloadable file of tools designed to be used in Adobe Photoshop available to anyone, along with guidance about how to use and interpret those tools. Forensic Tools. Office of Research Integrity, <https://ori.hhs.gov/forensic-tools> (last accessed Aug. 19, 2025); Advanced Forensic Actions. Office of Research Integrity, [Advanced Forensic Actions | ORI - The Office of Research Integrity](https://ori.hhs.gov/advanced-forensic-actions) (last accessed Aug. 19, 2025). NIH also hosts an image processing program it developed called ImageJ. *See* ImageJ – Image Processing and Analysis in Java. <https://imagej.net/ij/> (last accessed August 19, 2025).

<sup>4</sup> *See generally* Case Summaries. Office of Research Integrity, [Case Summaries | ORI - The Office of Research Integrity](https://ori.hhs.gov/case-summaries) (last accessed Aug. 19, 2025).

<sup>5</sup> *See, e.g.*, Case Summary: Zhang, Liping. Office of Research Integrity, [Case Summary: Zhang, Liping | ORI - The Office of Research Integrity](https://ori.hhs.gov/case-summary-zhang-liping) (also available at <https://www.federalregister.gov/documents/2025/03/19/2025-04489/findings-of-research-misconduct>) (last accessed August 19, 2025) (describing ORI's findings on a preponderance standard that the subject "knowingly falsified and fabricated" Western blot images in NIH grants); Case Summary: Eckert, Richard L. Office of Research Integrity, [Case Summary: Eckert, Richard L | ORI - The Office of Research Integrity](https://ori.hhs.gov/case-summary-eckert-richard-l) (also available at <https://www.federalregister.gov/documents/2024/08/15/2024-18289/findings-of-research-misconduct>) (last accessed August 19, 2025) (describing ORI's findings that the subject "intentionally, knowingly, or recklessly falsified and/or fabricated Western blot" images in NIH grants); and Case Summary: Danenberg, Andrew. Office of Research Integrity, [Case Summary: Dannenberg, Andrew J. | ORI - The Office of Research Integrity](https://ori.hhs.gov/case-summary-dannenberg-andrew-j) (also available at <https://www.federalregister.gov/documents/2023/09/13/2023-19779/findings-of-research-misconduct>) (last accessed August 19, 2025) (describing ORI's findings that the subject "recklessly reported falsified and/or fabricated Western blot image data" in NIH grants).

<sup>6</sup> Nor does his stated expertise suggest that he would be able to opine on a comparison, if one did exist.

equally” to image analysis.<sup>7</sup> See Ex. 1 at 4-5. Even assuming that the methods used in differential diagnosis for ruling out alternatives is an appropriate methodology and a necessary one in the instant case, Dr. Chiodo’s conclusion that Dr. Brookes did not systematically consider and exclude alternative explanations raises reliability questions about whether he closely read Dr. Brookes’ reports 4.1-4.18. Dr. Brookes report 4.13 addresses possible alternative explanations for one particular image, including different exposures, use of image sharpening, and use of different filters. Because the image analysis conducted across different images was typically similar, these potential alternatives would also be applicable to Dr. Brookes’ other analyses. In addition, Dr. Brookes sprinkled his reports with analysis ruling out alternative explanations. For example, in report 4.1, he stated that “[s]everal explanations for the appearance of the white box and its bands can be discarded,” explaining why digital enhancement, different exposure, or digital gel documentation could not be responsible for the manipulation. And in report 4.12, he found that “catastrophic mismanagement” of data to be the only possible alternative to manipulation and explained why that was “highly unlikely.”

Accordingly, Dr. Chiodo’s testimony should be precluded not only because he lacks the expertise to testify on the subject of Western blot image analysis, but also because each of his opinions standing on their own lack reliability, likely because he lacks applicable expertise.

## **II. The Court should exclude the proposed expert testimony of Dr. Peter Radtke**

Dr. Radtke’s proffered testimony was authored in 2022 for the purpose of addressing accusations made against the Defendant in a different forum and, unsurprisingly, lacks the benefit of the incriminating evidence discovered by the government in its search of the Defendant’s residence that Dr. Brookes utilized and has been provided to the Defendant. Dr. Radtke’s proffered

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<sup>7</sup> The Defendant of course can cross examine Dr. Brookes on his analysis of alternative explanations but that does not make Dr. Chiodo a reliable expert in Western blot image analysis.



opinions used only allegations made in a different forum, the resulting communications provided to him with various scientific journals, and what he calls the “original” Western blot data—which does not include the data recovered by the government from the Defendant’s residence. *See* Ex. 3. As a result, the government does not dispute Dr. Radtke’s conclusion that what he called original Western blot data matches what was provided to the journals (and although he does not make this point and may not have been aware of it, were also provided to NIH in grant applications in many instances). The government agrees that what the Defendant sent to the journals matches what was published, what they do not match were the images recovered from his residence and analyzed by Dr. Brookes, which demonstrates the Defendant’s manipulation. Using those recovered images, the government’s case will instead show that the manipulation occurred before the images were created that were analyzed by Dr. Radtke. Therefore, Dr. Radtke’s proffered testimony will not help the jury understand the evidence because he did not analyze the images at issue and or help the jury determine a fact in issue because the government does not dispute the images he analyzed matched under Rule 702. For these reasons, Dr. Radtke’s testimony lacks relevance to the forthcoming trial and should be precluded under Rules 702, 401, and 402. Moreover, allowing expert testimony on an issue not in dispute would present a danger of confusing the issues for the jury in violation of Rule 403.

To the extent that the Defendant wishes to raise some of the points Dr. Radtke made in his report about various artifacts in particular images and possible alternative explanations for those artifacts, those arguments misunderstand the government’s theory—the government’s case will essentially show that the relevant bands in the Western blot experiments were created out of whole cloth, not that certain small image artifacts are themselves definitive proof of manipulation. And if the Defendant intends to offer those arguments, Dr. Radtke’s 2022 report created for a different

purpose is deficient for that purpose because it does not mention or engage with (because he did not have them) the images that will be the subject of dispute at trial, namely those recovered from the Defendant's residence that form the basis of much of the government's case. For that reason, any such testimony by Dr. Radtke is excludable because it is not relevant and any corollary usage is also excludable both because it is not relevant to the government's case and because it has not been properly disclosed. *See* Fed. R. Ev. 401, 402, 702, 703.<sup>8</sup>

### **III. The Court should exclude the proposed expert testimony of Amanda Lisiewski**

Similar to Dr. Radtke, Ms. Lisiewski's proffered testimony is excludable because it does not address any issue in dispute. Ms. Lisiewski's report indicates that she was able to review the metadata of certain files related to one of the figures that Dr. Brookes concluded was fabricated, replicate (from a metadata perspective) part of what she understood from the Defendant was his process for creating Western blot images, and determine that certain images embedded in a PowerPoint document could not be matched or identified by unique metadata. Ex. 4.

The source of Ms. Lisiewski's information as to the Defendant's process for creating Western blots was the Defendant himself. Even assuming that the Defendant (who is charged with making multiple false and fraudulent statements) was a reliable source for this information, Ms. Lisiewski's conclusion that she was able to replicate steps 3-6 of Defendant's Western blot process has no relevance to the charged case because, again, the charged theory is that the Defendant manipulated the image before it was finalized into an image (i.e., prior to any final adjustment of contrast and brightness of the entire image, which is what Ms. Lisiewski describes as step 3). Any analysis of the images done after the manipulation alleged does not help the jury understand the

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<sup>8</sup> Additionally, Dr. Radtke's opinions would require the admission of the separate allegations Dr. Radtke is opining on, which presents its own host of issues, not the least of which is whether the report could be admitted under the rule against hearsay, in addition the relevance issues addressed above.

evidence or help the jury determine a fact in issue because the government does not dispute the images were not manipulated once the final contrast and brightness adjustment was completed and are therefore excludable under Rule 702 (and Rules 401 and 402). Such testimony also presents a danger of confusion under Rule 403.

Lastly, Ms. Lisiewski’s conclusion that certain images associated with a figure of the Defendant’s that Dr. Brookes analyzed in one of his reports could not be forensically matched based on unique metadata information does not have any relevance because it did not establish a relationship between the images. It is a null conclusion (Ms. Lisiewski “cannot confirm that these images are the same based on a hash comparison”). If anything at all, such a result supports the government’s fraud theory—if the Defendant manipulated the images one would not expect any of the unique metadata of the images to match because it would change at the same time the Defendant manipulated the image. Accordingly, this testimony should be precluded as irrelevant under Rules 401 and 402.

For the foregoing reasons, the government respectfully submits that the Court should exclude the proposed expert testimony of Dr. Chiodo, Dr. Radtke, and Ms. Lisiewski.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a copy of the foregoing was filed with the Clerk of the Court using the CM/ECF system, which will send notice to all counsel of record.

\_\_\_\_\_/s/\_\_\_\_\_  
Andrew Tyler, Acting Assistant Chief  
Fraud Section, Criminal Division  
United States Department of Justice